A NEW GENUS OF CLUBIONOID SPIDER FROM WESTERN AUSTRALIA (ARACHNIDA: ARANEOMORPHAE)

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Abstract

A new, clubionoid, monotypic genus is described from midwestern Western Australia. It is arid-adapted, lives in sandy habitats and is conjectured to feed on ants.

Introduction

The spider fauna of the northern two thirds of Western Australia is poorly known compared to that of other regions of Australia. Few species from the area have been mentioned in the taxonomic literature apart from several species named from near Shark Bay (Simon, 1908, 1909), one species from Roebourne (Hogg, 1903), 20 species listed from the Montebello Islands (Hogg, 1914), 10 species from the north-west of Western Australia (Rainbow and Musgrave, 1918) and the occurrence of *Conothele* in the Kimberleys (Main, 1957). Nevertheless it is known from various collections, particularly those in the Western Australian Museum, and naturalists' observations that a diverse and largely undescribed spider fauna exists north of the Murchison region.

Thus it is not surprising that a specimen of a new genus which cannot unequivocally be attributed to a family has been found amongst recently sorted material in the Western Australian Museum. The spider clearly fits in the Clubionoidea (Levi, 1982). Although it shares individual salient characters with one or more of the cluboinoid families it possesses a distinctive combination of characters. In addition it possesses a unique character–tubular spiracular openings in the epigastric groove.

On the slender evidence of a single specimen, I am reluctant to add yet another spider family to the already long list of taxa. One alternative would be to lump all the clubionoid families except the Gnaphosidae and Platoridae and include them in the Clubionidae. The latter families are alternatively placed in a separate superfamily, the Gnaphosoidea (Platnick, 1984). The retention of the families in question, e.g. Ammoxenidae, Homalonychidae, Cithaeronidae, Gallieniellidae (the latter two also placed in the Gnaphosoidea by Platnick (1984)) appears justified on biogeographic and biological criteria. Each family is representative of a desert or dry region on a separate continent, island or connected region–the Homalonychidae in Mexico and south-western U.S.A., the Ammoxenidae in Africa, the Cithaeronidae in Africa through to India (see Levi 1982), the Gallieniellidae in Madagascar and the Comoro Islands (Platnick, 1984)–as is also the new genus *Meedo* from mid-western Western Australia. The Ammoxenidae, Homalonychidae, and probably the Cithaeronidae, (all monogeneric families) and *Meedo* are all characteristic of sandy desert habitats, the Gallieniellidae of forest litter [generally the dry sclerophyll forest of Madagascar but also including montane humid habitats

(Platnick, 1984)]. It is possible that each family and *Meedo* represents a separate, analogous derivation from a clubionoid or gnaphosoid stock in response to an arid habitat. Certainly the tubular spiracular openings of *Meedo* appear to be an adaptation to reduce dessication and infiltration of the respiratory organs by sand. It is even possible that the lung books may have been replaced by tracheae. It is noteworthy that certain peculiarities of some of the above taxa, for example the paraxial chelicerae of the Gallieniellidae and *Meedo*, occur also in males of some clubionid genera such as *Clubiona* and *Chiracanthium.*

Because of the uncertain family status of the new genus it is placed tentatively in the Clubionidae—the traditional "dumping ground" for many doubtful genera, and with which it shares some features. If retained in the Clubionidae, a new subfamily may be designated later. However additional specimens including a male, are required before the spider's affinity is resolved.

The following description of the new taxon is necessarily brief because it is undesirable to dissect the single specimen for examination by a scanning electron microscope. Closer examination of the cuticular structures and clearing of the respiratory system would be particularly enlightening.

Meedo n. gen.

Type species: Meedo houstoni n. sp.

Etymology: The name is taken from the station on which the spider was found.

Diagnosis (based on female only)

Body elongate with cylindrical abdomen; superficial gnaphosid appearance. Eye group slightly less than half the width of the caput. Fovea a narrow, triangular cleft, apex directed posteriorly. Paraxial, porrect chelicerae with basal hump or boss, teeth absent, very long fang. Labium broad, short, anterior part lobate; sclerotised, stem-like base, distinct from sternum. Endites (maxillae) with median depression. Sternum heart-shaped, flat, very broad anteriorly. Two tarsal claws, with several teeth. Claw tufts, spines and trichobothria absent from legs. Fourth legs extraordinarily long. Six spinnerets, terminal segments broadly conical; anterior pair not contiguous. A pair of tube-like spiracles in epigastric furrow.

Comments

The genus shares some distinctive characters with the Gallieniellidae, namely the porrect, paraxial chelicerae with very long fang, the medially depressed endites (maxillae), the fourth legs longer than the first and the toothed tarsal claws. It differs by the absence of cheliceral teeth, the typical clubionid-like spinnerets and the very broad, short, lobate labium, round eyes and the tube-like spiracles. There is some similarity with other monogeneric clubionoid families (see Levi, 1982) e.g. the Ammoxenidae, Homalonychidae and Cithaeronidae all of which lack cheliceral teeth. *Meedo* is excluded from these families primarily by the paraxial chelicerae. The Ammoxenidae are further distinguished by the labium which is fused to the sternum, long posterior spinnerets and long, articulated tarsi. Both the Homalonychidae and the Cithaeronidae differ by having contigous anterior spinnerets on a common base and by having either claw tufts or spathulate setae. In addition the Homalonychidae have trichobothria and lack teeth on the tarsal claws.

Meedo houstoni n. sp.

(Figs 1-8)

Type: *Holotype* ♀, 10 km ESE of Meedo station homestead, Western Australia (25° 40′S 114° 37′E), 3-26 August, 1980, pitfall trap on red sand dune, C. A. Howard and T. F. Houston (336-23). Western Australian Museum, 1984/654.

Description

With the characters of the genus. Carapace (Fig. 5) length 2.6 mm, width 2.3, caput width approximately 1.2. Abdomen (Figs 2, 3) length 5.5, width 2.5, height 2.4. Colour yellowish to tan with dark greyish smudges along sides of legs, between and posterior to eyes; articulations of appendages darker brown; abdomen ventrally uniformly pale yellowish grey, dorsally with a dark grey marbled pattern with pale patches. Under low power stereo microscope, carapace and abdomen are glabrous and appear devoid of hairs and bristles except for a group of short bristles in front of eyes. Legs (Figs 1, 4) glabrous, with fine hairs and a ventral, brush-like arrangement of short bristles (pseudoscopula?) on tarsi. Chelicerae clothed with short bristles.

Eye group 0.7 wide. Posterior row of eyes strongly procurved. Integument has lifted which gives the eyes a double-lensed appearance (Fig. 5). Chelicerae project 0.8 in front of caput, length in profile 1.4; strongly porrect with a median dorsal prominence and large, bulbous pale boss; fine bristles along inner (pro) margin of groove but without teeth. Labium twice as wide as long–0.2 long, 0.4 wide. Maxillae with broad base and long endite lobes. Sternum (Fig. 6) approximately 1.6 long, 1.3 wide. Very broad in

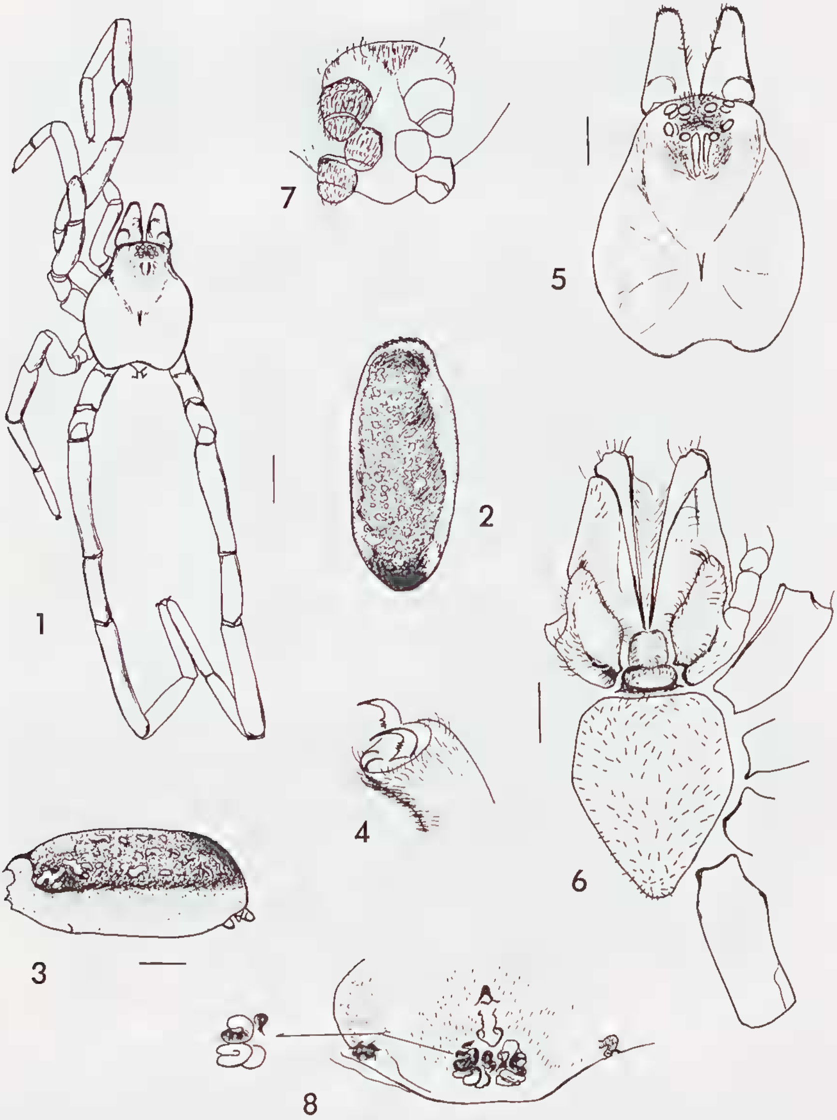
TABLE 1

Leg formula and measurements of *Meedo houstoni* sp. nov. The leg formula is length of leg/length of carapace. The tibial index is 100 x width of patella/(length of patella + length of tibia) (Petrunkevitch, 1942).

Leg formula:	4	1	2	3
	4.26	3.46	2.46	2.07

Leg	F	P	T	MT	T	Total
I	2.3	1.4	2.1	1.8	1.4	9.0
II	1.7	1.1	1.3	1.4	0.9	6.4
III	1.2	0.8	1.1	1.4	0.9	5.4
IV	2.6	1.4	2.5	2.9	1.7	11.1
PALP	1.0	0.5	0.5	–	0.7	2.7

Width of patella I at "knee", 0.3.	Tibial index, 8.57
Width of patella IV at "knee", 0.35.	Tibial index, 8.97



Figs 1-8. *Meedo houstoni* n. sp., ♀ holotype. (1) carapace and appendages; (2) abdomen, dorsal view; (3) abdomen, profile; (4) tarsal claws of right leg II (note ventral sclerotised groove); (5) carapace and abdomen; (6) sternum and coxae, labium, maxillae (endites) and chelicerae; (7) spinnerets; (8) spiracles and epigynum (uncleared) with spermathecae visible through integument.
Scale bars, (1)-(3) = 1.0 mm; (5), (6) = 0.5 mm; others not to scale.

anterior and mid-region, anterior margin straight; clothed with short, rod-like hairs. Fourth pair of legs very long (Table 1) with tarsi and metatarsi bent forwards underneath. Six spinnerets (Fig. 7) about equal length. Epigynum inconspicuous, with weakly sclerotised longituninal, trough-like piece anterior to convoluted spermathecal tubes which are clearly visible through integument (Fig. 8).

Discussion

The glabrous, sparsely clothed integument and constricted spiracular openings and the occurrence in a red sand dune habitat suggest that the spider is arid-adapted. As noted earlier the tube-like spiracles would reduce dessication and prevent sand infiltration of the respiratory organs. The very long posterior legs which appear to be naturally bent suggest a spring-like action which may be associated with catching ants by rapid forward lunges when the legs are straightened. Significantly the Gallieniellidae which similarly have paraxial chelicerae with a long fang, and long posterior legs, are ant feeders (Legendre, 1967).

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